

**SECTION 09 91 00
PAINTING**

PART 1-GENERAL

1.1 DESCRIPTION

- A. Section specifies prime coats which may be applied in shop under other sections.
- B. Painting includes shellacs, stains, varnishes, coatings specified, and striping or markers and identity markings.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
Before work is started, or sample panels are prepared, submit manufacturer's literature, the current Master Painters Institute (MPI) "Approved Product List" indicating brand label, product name and product code as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use subsequent MPI "Approved Product List", however, only one list may be used for the entire contract and each coating system is to be from a single manufacturer. All coats on a particular substrate must be from a single manufacturer. No variation from the MPI "Approved Product List" where applicable is acceptable.
- C. Samples:
 - 1. After painters' materials have been approved and before work is started submit samples showing each type of finish and color specified.
 - 2. Samples to show color: Composition board, 150 by 150 (6 inch by 6 inch).
- D. Manufacturers' Certificates indicating compliance with specified requirements:
 - 1. Manufacturer's paint substituted for Federal Specification paints meets or exceeds performance of paint specified.
 - 2. High temperature aluminum paint.
 - 3. Epoxy coating.
 - 4. Intumescent clear coating or fire retardant paint.
 - 5. Plastic floor coating.

1.3 DELIVERY AND STORAGE

- A. Deliver materials to site in manufacturer's sealed container marked to show following:
 - 1. Name of manufacturer.
 - 2. Product type.
 - 3. Batch number.

4. Instructions for use.
5. Safety precautions.
- B. In addition to manufacturer's label, provide a label legibly printed as following:
 1. Federal Specification Number, where applicable, and name of material.
 2. Surface upon which material is to be applied.
 3. If paint or other coating, state coat types; prime, body or finish.
- C. Maintain space for storage, and handling of painting materials and equipment in a neat and orderly condition to prevent spontaneous combustion from occurring or igniting adjacent items.
- D. Store materials at site at least 24 hours before using, at a temperature between 18 and 30 degrees C (65 and 85 degrees F).

1.4 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by basic designation only.
- B. American Conference of Governmental Industrial Hygienists (ACGIH):
ACGIH TLV-BKLT-2009.....Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs)
ACGIH TLV-DOC-2009.....Documentation of Threshold Limit Values and Biological Exposure Indices, (Seventh Edition)
- C. American National Standards Institute (ANSI):
A13.1-07.....Scheme for the Identification of Piping Systems
- D. American Society for Testing and Materials (ASTM):
D260-86 (2001).....Boiled Linseed Oil
- E. Federal Specifications (Fed Spec):
TT-P-1411A.....Paint, Copolymer-Resin, Cementitious (For Waterproofing Concrete and Masonry Walls) (CEP)
- F. Master Painters Institute (MPI):
No. 4-08.....Interior/ Exterior Latex Block Filler
No. 5-02.....Exterior Alkyd Wood Primer
No. 7-02.....Exterior Oil Wood Primer
No. 8-07.....Exterior Alkyd, Flat MPI Gloss Level 1 (EO)
No. 9-07.....Exterior Alkyd Enamel MPI Gloss Level 6 (EO)
No. 10-07.....Exterior Latex, Flat (AE)
No. 11-07.....Exterior Latex, Semi-Gloss (AE)
No. 26-03.....Cementitious Galvanized Metal Primer
No. 27-07.....Exterior / Interior Alkyd Floor Enamel, Gloss (FE)
No. 43-06.....Interior Satin Latex, MPI Gloss Level 4
No. 44-08.....Interior Low Sheen Latex, MPI Gloss Level 2

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- No. 45-02.....Interior Primer Sealer
 - No. 46-04.....Interior Enamel Undercoat
 - No. 47-02.....Interior Alkyd, Semi-Gloss, MPI Gloss Level 5 (AK)
 - No. 48-05.....Interior Alkyd, Gloss, MPI Gloss Level 6 (AK)
 - No. 49-02.....Interior Alkyd, Flat, MPI Gloss Level 1 (AK)
 - No. 50-08.....Interior Latex Primer Sealer
 - No. 51-02.....Interior Alkyd, Eggshell, MPI Gloss Level 3
 - No. 52-06.....Interior Latex, MPI Gloss Level 3 (LE)
 - No. 53-06.....Interior Latex, Flat, MPI Gloss Level 1 (LE)
 - No. 54-06.....Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)
 - No. 59-07.....Interior/Exterior Alkyd Porch & Floor Enamel, Low
Gloss (FE)
 - No. 60-07.....Interior/Exterior Latex Porch & Floor Paint, Low
Gloss
 - No. 68-07.....Interior/ Exterior Latex Porch & Floor Paint,
Gloss
 - No. 77-08.....Epoxy Cold Cured, Gloss (EC)
 - No. 79-08.....Marine Alkyd Metal Primer
 - No. 94-07.....Exterior Alkyd, Semi-Gloss (EO)
 - No. 95-03.....Fast Drying Metal Primer
 - No. 101-08.....Epoxy Anti-Corrosive Metal Primer
 - No. 108-08.....High Build Epoxy Coating, Low Gloss (EC)
 - No. 114-06.....Interior Latex, Gloss (LE) and (LG)
 - No. 119-07.....Exterior Latex, High Gloss (acrylic) (AE)
 - No. 134-06.....Primer, Galvanized, Water Based
 - No. 135-06.....Non-Cementitious Galvanized Primer
 - No. 138-06.....Interior High Performance Latex, MPI Gloss Level 2
(LF)
 - No. 139-06.....Interior High Performance Latex, MPI Gloss Level 3
(LL)
 - No. 140-06.....Interior High Performance Latex, MPI Gloss Level 4
 - No. 141-06.....Interior High Performance Latex (SG) MPI Gloss
Level 5
- G. Steel Structures Painting Council (SSPC):
- SSPC SP 1-04.....Solvent Cleaning
 - SSPC SP 2-04.....Hand Tool Cleaning
 - SSPC SP 3-04.....Power Tool Cleaning

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Exterior Alkyd, Semi-Gloss (EO): MPI 94.
- B. Fast Drying Metal Primer: MPI 95.
- C. High Build Epoxy Coating
- D. Epoxy Anti-Corrosive Metal Primer: MPI 101.
- E. Exterior Latex, High Gloss (acrylic) (AE): MPI 119.

2.2 PAINT PROPERTIES

- A. Use ready-mixed (including colors), except two component epoxies, polyurethanes, polyesters, paints having metallic powders packaged separately and paints requiring specified additives.
- B. Where no requirements are given in the referenced specifications for primers, use primers with pigment and vehicle, compatible with substrate and finish coats specified.

2.3 REGULATORY REQUIREMENTS/QUALITY ASSURANCE

- A. Paint materials shall conform to the restrictions of the local Environmental and Toxic Control jurisdiction.
 - 1. Volatile Organic Compounds (VOC): VOC content of paint materials shall not exceed 10g/l for interior latex paints/primers and 50g/l for exterior latex paints and primers.
 - 2. Lead-Base Paint:
 - a. Lead based paint is not permitted to be used.
 - 3. Asbestos: Materials shall not contain asbestos.
 - 4. Chromate, Cadmium, Mercury, and Silica: Materials shall not contain zinc-chromate, strontium-chromate, Cadmium, mercury or mercury compounds or free crystalline silica.
 - 5. Human Carcinogens: Materials shall not contain any of the ACGIH-BKLT and ACGHI-DOC confirmed or suspected human carcinogens.
 - 6. Use high performance acrylic paints in place of alkyd paints, where possible.
 - 7. VOC content for solvent-based paints shall not exceed 250g/l and shall not be formulated with more than one percent aromatic hydro carbons by weight.

PART 3 - EXECUTION

3.1 JOB CONDITIONS

- A. Safety: Observe required safety regulations and manufacturer's warning and instructions for storage, handling and application of painting materials.
 - 1. Take necessary precautions to protect personnel and property from hazards due to falls, injuries, toxic fumes, fire, explosion, or other harm.
 - 2. Deposit soiled cleaning rags and waste materials in metal containers approved for that purpose. Dispose of such items off the site at end of each day's work.
- B. Atmospheric and Surface Conditions:
 - 1. Do not apply coating when air or substrate conditions are:
 - a. Less than 3 degrees C (5 degrees F) above dew point.
 - b. Below 10 degrees C (50 degrees F) or over 35 degrees C (95 degrees F), unless specifically pre-approved by the Contracting Officer and the product manufacturer. Under no circumstances shall application conditions exceed manufacturer recommendations.
 - 2. Do no exterior painting when it is windy and dusty.
 - 3. Do not paint in direct sunlight or on surfaces that the sun will soon warm.
 - 4. Apply only on clean, dry and frost free surfaces except as follows:
 - a. Apply water thinned acrylic and cementitious paints to damp (not wet) surfaces where allowed by manufacturer's printed instructions.
 - b. Dampened with a fine mist of water on hot dry days concrete and masonry surfaces to which water thinned acrylic and cementitious paints are applied to prevent excessive suction and to cool surface.

3.2 SURFACE PREPARATION

- A. Method of surface preparation is optional, provided results of finish painting produce solid even color and texture specified with no overlays.
- B. General:
 - 1. Remove prefinished items not to be painted such as lighting fixtures, escutcheon plates, hardware, trim, and similar items for reinstallation after paint is dried.
 - 2. Remove items for reinstallation and complete painting of such items and adjacent areas when item or adjacent surface is not accessible or finish is different.
 - 3. See other sections of specifications for specified surface conditions and prime coat.
 - 4. Clean surfaces for painting with materials and methods compatible with substrate and specified finish. Remove any residue remaining from

cleaning agents used. Do not use solvents, acid, or steam on concrete and masonry.

C. Ferrous Metals:

1. Remove oil, grease, soil, drawing and cutting compounds, flux and other detrimental foreign matter in accordance with SSPC-SP 1 (Solvent Cleaning).
2. Remove loose mill scale, rust, and paint, by hand or power tool cleaning, as defined in SSPC-SP 2 (Hand Tool Cleaning) and SSPC-SP 3 (Power Tool Cleaning). Exception: where high temperature aluminum paint is used, prepare surface in accordance with paint manufacturer's instructions.
3. Fill dents, holes and similar voids and depressions in flat exposed surfaces of hollow steel doors and frames, access panels, roll-up steel doors and similar items specified to have semi-gloss or gloss finish with TT-F-322D (Filler, Two-Component Type, For Dents, Small Holes and Blow-Holes). Finish flush with adjacent surfaces.
 - a. This includes flat head countersunk screws used for permanent anchors.
 - b. Do not fill screws of item intended for removal such as glazing beads.
4. Spot prime abraded and damaged areas in shop prime coat which expose bare metal with same type of paint used for prime coat. Feather edge of spot prime to produce smooth finish coat.
5. Spot prime abraded and damaged areas which expose bare metal of factory finished items with paint as recommended by manufacturer of item.

D. Masonry, Concrete, Cement Board, Cement Plaster and Stucco:

1. Clean and remove dust, dirt, oil, grease efflorescence, form release agents, laitance, and other deterrents to paint adhesion.
2. Use emulsion type cleaning agents to remove oil, grease, paint and similar products. Use of solvents, acid, or steam is not permitted.
3. Remove loose mortar in masonry work.
4. Replace mortar and fill open joints, holes, cracks and depressions with new mortar specified in Section 04 05 13, MASONRY MORTARING. Do not fill weep holes. Finish to match adjacent surfaces.
5. Neutralize Concrete floors to be painted by washing with a solution of 1.4 Kg (3 pounds) of zinc sulfate crystals to 3.8 L (1 gallon) of water, allow to dry three days and brush thoroughly free of crystals.
6. Repair broken and spalled concrete edges with concrete patching compound to match adjacent surfaces as specified in CONCRETE Sections. Remove projections to level of adjacent surface by grinding or similar methods.

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3.3 PAINT PREPARATION

- A. Thoroughly mix painting materials to ensure uniformity of color, complete dispersion of pigment and uniform composition.
- B. Do not thin unless necessary for application and when finish paint is used for body and prime coats. Use materials and quantities for thinning as specified in manufacturer's printed instructions.
- C. Remove paint skins, then strain paint through commercial paint strainer to remove lumps and other particles.
- D. Mix two component and two part paint and those requiring additives in such a manner as to uniformly blend as specified in manufacturer's printed instructions unless specified otherwise.
- E. For tinting required to produce exact shades specified, use color pigment recommended by the paint manufacturer.

3.4 APPLICATION

- A. Start of surface preparation or painting will be construed as acceptance of the surface as satisfactory for the application of materials.
- B. Unless otherwise specified, apply paint in three coats; prime, body, and finish. When two coats applied to prime coat are the same, first coat applied over primer is body coat and second coat is finish coat.
- C. Apply each coat evenly and cover substrate completely.
- D. Allow not less than 48 hours between application of succeeding coats, except as allowed by manufacturer's printed instructions, and approved by RE/COTR.
- E. Finish surfaces to show solid even color, free from runs, lumps, brush marks, laps, holidays, or other defects.
- F. Apply by brush, roller or spray, except as otherwise specified.
- G. Do not spray paint in existing occupied spaces unless approved by RE/COTR, except in spaces sealed from existing occupied spaces.
 - 1. Apply painting materials specifically required by manufacturer to be applied by spraying.
 - 2. In areas, where paint is applied by spray, mask or enclose with polyethylene, or similar air tight material with edges and seams continuously sealed including items specified in WORK NOT PAINTED, motors, controls, telephone, and electrical equipment, fronts of sterilizes and other recessed equipment and similar prefinished items.
- I. Do not paint in closed position operable items such as access doors and panels, window sashes, overhead doors, and similar items except overhead roll-up doors and shutters.

3.5 PRIME PAINTING

- A. After surface preparation, prime surfaces before application of body and finish coats, except as otherwise specified.
- B. Spot prime and apply body coat to damaged and abraded painted surfaces before applying succeeding coats.
- C. Additional field applied prime coats over shop or factory applied prime coats are not required except for exterior exposed steel. Apply an additional prime coat.
- D. Prime rebates for stop and face glazing of wood, and for face glazing of steel.
- E. Metals:
 - 1. Steel and iron: MPI 95 (Fast Drying Metal Primer). Use MPI 101 (Cold Curing Epoxy Primer) where High Build Epoxy Coating finish is specified.
 - 2. Zinc-coated steel and iron: MPI 135 (Non-Cementitious Galvanized Primer).

3.6 EXTERIOR FINISHES

- A. Apply following finish coats where specified.
- B. Steel and Ferrous Metal:
 - 1. Two coats of MPI 8 (Exterior Alkyd, Flat (EO)), MPI 9 (Exterior Alkyd Enamel (EO)), MPI 94 (Exterior Alkyd, Semi-Gloss (EO)) on exposed surfaces, except on surfaces over 94 degrees C (200 degrees F).
- C. Machinery without factory finish except for primer: One coat MPI 8 (Exterior Alkyd, Flat (EO)), MPI 9 (Exterior Alkyd Enamel (EO)), MPI 94 (Exterior Alkyd, Semi-Gloss (EO)).

3.8 PAINT COLOR

- A. Color and gloss of finish coats shall match existing

3.9 PROTECTION CLEAN UP, AND TOUCH-UP

- A. Protect work from paint droppings and spattering by use of masking, drop cloths, removal of items or by other approved methods.
- B. Upon completion, clean paint from hardware, glass and other surfaces and items not required to be painted of paint drops or smears.
- C. Before final inspection, touch-up or refinished in a manner to produce solid even color and finish texture, free from defects in work which was damaged or discolored.

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